

The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

Paper No. 22

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* PAUL KLOCEK

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Appeal No. 1998-1665  
Application No. 08/476,831

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ON BRIEF

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Before GARRIS, PAK, and TIMM, *Administrative Patent Judges*.

TIMM, *Administrative Patent Judge*.

***DECISION ON APPEAL***

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-5, 69-73, 75-86, which are all of the claims pending in this application. Appellant has withdrawn claim 73 from appeal (Reply Brief, page 1).

### ***THE INVENTION***

Appellant's invention relates to a an optical window. Claim 1 is illustrative:

1. An optical window consisting essentially of:

(a) a group III-V compound

(b) doped with an element taken from the class consisting of shallow donors and having a dopant concentration of from about  $5 \times 10^{15}$  to about  $2 \times 10^{16}$  atoms/cc

(c) and having less than about  $1 \times 10^7$  atoms/cc of carbon impurity.

### ***THE REFERENCES RELIED UPON***

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

McNeely et al. (McNeely)	3,533,967	Oct. 13, 1970
Bult et al. (Bult)	4,585,511	Apr. 29, 1986

### ***THE REJECTION***

Claims 1-5, 69-72, and 75-86 stand rejected under 35 U.S.C. § 103 as being unpatentable over McNeely in view of Bult.

***OPINION***

Claim 1 is directed to an optical window consisting essentially of a group III-V compound that has been doped with a dopant in a concentration of from about  $5 \times 10^{15}$  to about  $2 \times 10^{16}$  atoms/cc. The dopant is an element taken from the class consisting of shallow donors. The specification indicates that selenium (Se) is a preferred shallow donor dopant (specification, page 6). Claim 1 also limits the level of carbon impurity to less than about  $1 \times 10^7$  atoms/cc. The material of the optical window is formed by crystallizing a melt of the doped group III-V compound in a carbon cloth covered graphite crucible subjected to a vertical temperature gradient (specification, pages 8-9). According to the specification, if the carbon level in the melt is greater than  $1 \times 10^7$  atoms/cc, then an increased amount of Se dopant must be used, such as about  $5 \times 10^{16}$  atoms/cc (specification, page 6). The specification indicates that increasing the Se doping level results in a lowering of the mobility of the electrons and increased non-uniformity and provides an inferior result (specification, page 8). Therefore, a boron oxide with a water content of 450-550 ppm is added to the melt to assist in removal of impurities, particularly carbon (*Id.*).

The examiner rejects the claims over McNeely in view of Bult. McNeely describes a process of forming GaAs semiconductor single crystals including GaAs double-doped with oxygen and selenium. McNeely is silent as to the level of carbon. Bult is added to the rejection for the teaching of using wet boron oxide encapsulant in the growing of a GaAs semiconductor single crystal. The examiner concludes from the teachings of McNeely and Bult that one ordinary skill in the art would

have found it obvious to modify the process of McNeely by the encapsulation process of Bult “to have gallium arsenide with low carbon in order to produce a stabler composition.” (Answer, page 4).

We note that Bult is silent as to the level of carbon in the semiconductor composition. The examiner states that the combination of references as applied against the claims teach low carbon content since the same method as applicant is used to remove the carbon, i.e. the use of a wet boron oxide. It is the examiner’s position that the specification clearly states that the claimed carbon levels are obtained solely by using wet boron oxide during growth. The examiner concludes that since the process suggested by the combination of McNeely and Bult uses wet boron oxide in a GaAs single crystal growth process, the impurity levels must inherently be the same.

“[I]t is elementary that the mere recitation of a newly discovered function or property, inherently possessed by things in the prior art, does not cause a claim drawn to those things to distinguish over the prior art.” *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977)(quoting *In re Swinehart*, 439 F.2d 210, 169 USPQ 226 (1971)). Therefore, where the examiner has reason to believe that a property asserted to be critical for establishing novelty in the claimed subject matter may, in fact, be an inherent characteristic of the prior art product, the examiner possesses the authority to require an applicant to prove that the subject matter shown to be in the prior art does not in fact possess the property. *Id.* However, before an applicant can be put to this burdensome task, the examiner must provide enough evidence or scientific reasoning to establish that the assertion of inherency is reasonable. *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Int. 1990); *Ex*

*parte Skinner*, 2 USPQ2d 1788, 1789 (Bd. Pat. App. & Int. 1986). It must be remembered that the examiner bears the initial burden of presenting a *prima facie* case of unpatentability. *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444

(Fed. Cir. 1992). In some cases, the examiner's belief that a particular property was inherent has been found to be reasonable when it was established that the claimed and prior art products were identical or substantially identical, or produced by identical or substantially identical processes. See *In re Best*, 562 F.2d at 1255, 195 USPQ at 433-34. The examiner relies on the similarity of the processes as the basis of his belief that the carbon content is inherently within the claimed range.

We are not persuaded that the similarities in the process rise to the level of creating a reasonable belief that the carbon impurity content of the composition one of ordinary skill in the art would have created using the teachings of the prior art would have necessarily been at the low level required by the claims. As pointed out by appellant (Reply Brief, page 3), the specification indicates that the wet boron oxide assists in removal of impurities, particularly carbon, from the melt (specification, page 8). However, there is no indication that wet boron oxide is the only factor determining carbon impurity level. We note that the GaAs of McNeely and Bult are of semiconductor device grade. There is no evidence presented by the examiner as to the conventional levels of carbon impurities in GaAs of this grade. We further note that there are differences in the processes which could reasonably affect the carbon level and the examiner has not offered any evidence or technical reasoning tending to show that those differences do not have an effect.

We note that based on the raw materials and process environment, it may be possible that carbon may be within the claimed range. However, “[i]nherency ... may not be established by probabilities or possibilities. The mere fact that a certain thing *may result* from a given set of circumstances is not sufficient.” *Mehl/Biophile Int’l Corp. v. Milgraum*, 192 F.3d 1362, 1365, 52 USPQ2d 1303, 1305 (Fed. Cir. 1999)(quoting *In re Oelrich*, 666 F.2d 578, 581, 212 USPQ 323, 326 (CCPA 1981)). *See also Glaxo, Inc. v. Novopharm Ltd.*, 830 F.Supp. 871, 874, 29 USPQ2d 1126, 1128 (E.D. N.C. 1993), *aff’d*, 34 USPQ2d 1565 (Fed. Cir.), *cert. denied*, 516 U.S. 988 (1995)(“[I]t is not sufficient that a person following the disclosure sometimes obtain the result set forth in the claim, it must invariably happen.”).

We conclude that the Examiner has failed to establish a *prima facie* case of obviousness with respect to the subject matter of all the claims on appeal.

***CONCLUSION***

To summarize, the decision of the Examiner to reject claims 1-5, 69-72, and 75-86 under 35 U.S.C. § 103 is reversed. The appeal with respect to claim 73 has been dismissed as that claim was withdrawn from appeal.

REVERSED-IN-PART

DISMISSED-IN-PART

BRADLEY R. GARRIS  
Administrative Patent Judge

CHUNG K. PAK  
Administrative Patent Judge

CATHERINE TIMM  
Administrative Patent Judge

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